

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of	)	
	)	
Margaret Mary Pafford et al.	)	Examiner: Colleen P. Cooke
Serial No. 10/044,831	)	
	)	
Filed: January 9, 2002	)	Group Art Unit: 1754
	)	
Title: METAL ALKOXIDES AND	)	
METHODS OF MAKING SAME	)	

The Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

**DECLARATION OF MARGARET MARY PAFFORD**

I, Margaret Mary Pafford, declare as follows:

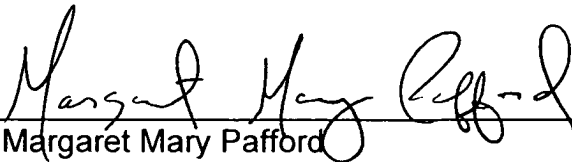
1. I am a co-inventor of the subject matter claimed in the above-identified U.S. Patent Application.
2. At the time of the invention of the subject matter claimed in the above-identified U.S. Patent Application, I was a graduate student working in the laboratory of Walter G. Klemperer at The University of Illinois at Urbana-Champaign. As a graduate student, I worked with Professor Klemperer in areas including the synthesis and characterization of metal alkoxides.
3. The journal publication "Isolation and Structural Characterization of Tetra-*n*-propyl Zirconate in Hydrocarbon Solution and the Solid State" (*Inorg. Chem.* **2001**, *40*, 5738-5746) lists as authors Victor W. Day, Walter G. Klemperer, and me. This article includes descriptions of work performed by Walter G. Klemperer and me. Specifically, Walter G. Klemperer and I invented the "analytically pure"  $Zr_4(OPr^n)_{16}$ , and the method of making the analytically pure  $Zr_4(OPr^n)_{16}$ , referred to at p. 5744, right

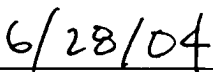
column, lines 2-14 of this publication. In addition, all characterization by nuclear magnetic resonance (NMR) spectroscopy was carried out by us or under our direction.

4. The contribution of co-author Victor W. Day to the content of this publication was limited to the solid-state characterization of the analytically pure  $\text{Zr}_4(\text{OPr}^n)_{16}$  by X-ray crystallography. This is described at p. 5740, right column, line 11 through p. 5741, left column, text line 20, and at p. 5741, right column, text line 9 through p. 5742.

5. The X-ray crystallographic characterization by Victor W. Day did not contribute to the development of analytically pure  $\text{Zr}_4(\text{OPr}^n)_{16}$ , nor did it contribute to the establishment of the level of purity of this substance. Rather, analytically pure  $\text{Zr}_4(\text{OPr}^n)_{16}$  and the characterization of its purity by NMR spectroscopy was invented by Walter G. Klemperer and me.

6. I declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above applications or any patent granted therein.

  
Margaret Mary Pafford

  
Date

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P.O. Box 1450  
Alexandria, VA 22313

**DECLARATION OF WALTER G. KLEMPERER**

I, Walter G. Klemperer, declare as follows:

1. I am a co-inventor of the subject matter claimed in the above-identified U.S. Patent Application.

2. I am a professor of chemistry at The University of Illinois at Urbana-Champaign. As a professor and principal investigator for a research laboratory, I have worked in a variety of areas including the area of the synthesis and characterization of metal alkoxides. The other co-inventor of the subject matter claimed in the above-identified U.S. Patent Application, Margaret Mary Pafford, was a graduate student working in my laboratory at the time of this invention.


3. The journal publication "Isolation and Structural Characterization of Tetra-*n*-propyl Zirconate in Hydrocarbon Solution and the Solid State" (*Inorg. Chem.* **2001**, *40*, 5738-5746) lists as authors Victor W. Day, Margaret Mary Pafford, and me. This article includes descriptions of work performed, under my direction, by Margaret Mary Pafford and me. Specifically, Margaret Mary Pafford and I invented the

"analytically pure"  $\text{Zr}_4(\text{OPr}^n)_{16}$ , and the method of making the analytically pure  $\text{Zr}_4(\text{OPr}^n)_{16}$ , referred to at p. 5744, right column, lines 2-14 of this publication. In addition, all characterization by nuclear magnetic resonance (NMR) spectroscopy was carried out by us or under our direction.

4. The contribution of co-author Victor W. Day to the content of this publication was limited to the solid-state characterization of the analytically pure  $\text{Zr}_4(\text{OPr}^n)_{16}$  by X-ray crystallography. This is described at p. 5740, right column, line 11 through p. 5741, left column, text line 20, and at p. 5741, right column, text line 9 through p. 5742.

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6. I declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above applications or any patent granted therein.

  
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Walter G. Klemperer

25 June 04  
\_\_\_\_\_  
Date